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AN ANTIBACTERIAL BIOACTIVE FRACTION OF CINNAMON FRUIT

FIELD OF THE INVENTION

The present invention relates to a composition comprising a bioactive fraction obtained from the fruits of *Cinnamomum zeylanicum*, use of the bioactive fraction thus obtained as antibacterial agent and a process for preparing the same from un-conventional parts of *Cinnamomum zeylanicum*.

PRIOR ART AND BACKGROUND OF THE INVENTION

The problem of food spoilage has plagued man since ancient times. Microbial activity is a primary mode of deterioration of many foods, and the food industry relies heavily upon use of antimicrobial agents to extend shelf life of food products. With growing concern over the presence of chemical residues in foods, the demand for non-toxic natural preservatives has been rising. Natural antibacterial compounds can be used to replace the chemical additives as they have significant antimicrobial activity (Smid EJ, Gorris LGM, Natural antimicrobials for food preservation, In- Shafiur Rahman M (ed) Handbook of food preservation. Marcel Dekker, Inc, New York, pp.285-308, 1999).

Cinnamomum zeylanicum Blume (synonym *Cinnamomum verum* J. S. Presl), the cinnamon of commerce provides various types of oils depending on the part of the plant distilled. Cinnamon is a native of Sri Lanka and tropical Asia. The tree is found in South India up to altitudes of 500 meters but is more common at lower altitudes (*The Wealth of India. A Dictionary of Indian Raw Material and Industrial Products*. Publication and Information Directorate, New Delhi, 1992, p. 582). A total of 53 compounds of cinnamon leaf oil were identified with the major component being eugenol (about 81-84.5%) (Mallavarapu, G.R., Ramesh, S., Chandrasekhara, R.S., Rajeswara Rao, B.R., Kaul, P.N., and Battacharya, A.K. *Flavour and Fragr. J.*, 10, 239, 1995). The essential oil is reported to have antimicrobial (Dubey, N.K. and Mishra, A.K. *Indian Drugs* 27, 529-531, 1990), fungitoxic (Saksena, N.K. and Saksena, S. *Indian Perfumer*, 28, 42-45, 1984), nematocidal (Tiwari, R. Dixit, R. and Dixit, S.N. *Indian Perfumer*, 38, 98-104, 1994), and leech repelling activities (Nakamura, N. Kiuchi, F., Tsuda, Y., Kondo, K. and Sato, T. *Shoyakugaka Zasshi*, 44, 183-195, 1990). Cinnamaldehyde (about 75%) and camphor (about 56%) have been reported to be the major components of volatile oils from stem bark and root bark respectively, (Senanayake, W.M., Lee, T.H., and Wills, R. B. H., *J.Agric. Food.Chem.* 26, 822, 1978). Eugenol and cinnamaldehyde are used as

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antimicrobial agents in pharmaceuticals and oral care product (*The Wealth of India. A Dictionary of Indian Raw Material and Industrial Products*. Publication and Information Directorate, New Delhi, 1992, p. 582).

- 5 Literature survey revealed that, there is no report on the isolation of antibacterial fraction from the fruits of *Cinnamomum zeylanicum*.

The present invention provides a one step process for preparation of a bioactive fraction, which has antibacterial activity. Hence, the inventors have developed a process for the preparation of bioactive fraction from the unconventional parts of *Cinnamomum*
10 *zeylanicum*, which have no commercial value at present.

The principle of the present invention is to provide technology for the preparation of an antibacterial fraction from the unconventional parts of *Cinnamomum zeylanicum*, which can be used as potential natural preservative.

- This invention is related to an efficient process for the large-scale preparation of
15 antibacterial fraction from the unconventional parts of *Cinnamomum zeylanicum*.

OBJECTS OF THE PRESENT INVENTION

- Therefore, the object of the present invention is to provide a process for the preparation of antibacterial fraction from the fruits of *Cinnamomum zeylanicum*. The process is efficient and it involves the use of simple extraction methods and solvents, which can be
20 re-used.

SUMMARY OF THE INVENTION

- According to the present invention, there is provided a composition comprising a bioactive fraction obtained from fruits of *Cinnamomum zeylanicum* having moisture 4-6%, Greenish white colour and mild salty flavor optionally along with one or more
25 pharmaceutically acceptable additives.

The present invention also provides use of the bioactive thus obtained as an antibacterial agent.

The present invention further provides a process for preparing the bioactive fraction.

DETAILED DESCRIPTION OF THE INVENTION

- 30 Accordingly, the present invention relates to a composition comprising a bioactive fraction obtained from fruits of *Cinnamomum zeylanicum* having

Moisture: 4-6%

Color: Greenish white

Flavor: Mild salty flavor

optionally along with one or more pharmaceutically acceptable additives.

5 In an embodiment of the present invention the bioactive fraction is a hexane extract obtained from the fruits of *Cinnamomum zeylanicum*.

In another embodiment of the present invention the composition has antibacterial activity against gram positive and gram negative bacterial in the range of 200-500 ppm.

10 In yet another embodiment of the present invention the composition has antibacterial activity against *Bacillus cereus*, *Bacillus subtilis*, *Bacillus coagulans*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*.

The present invention provides a novel use of a bioactive fraction obtained from fruits of *Cinnamomum zeylanicum* having

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15 Flavor: Mild salty flavor
as an antibacterial agent.

In an embodiment of the present invention the bioactive fraction is a hexane extract obtained from the fruits of *Cinnamomum zeylanicum*.

20 In another embodiment of the present invention, the bioactive fraction has antibacterial activity against gram positive and gram negative bacterial in the range of 200-500 ppm.

In yet another embodiment of the present invention, the bioactive fraction has antibacterial activity against *Bacillus cereus*, *Bacillus subtilis*, *Bacillus coagulans*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*.

25 The present invention also provides a process for preparing antibacterial bioactive fraction having

Moisture: 4-6%

Color: Greenish white

Flavor: Mild salty flavor

30 from the unconventional parts of *Cinnamomum zeylanicum*, said process comprising the steps of:

- (a) extracting the powdered fruits of *Cinnamomum zeylanicum* with an organic solvent at a temperature in the range of 55-60°C for a time period in the range of 6-8 mesh.